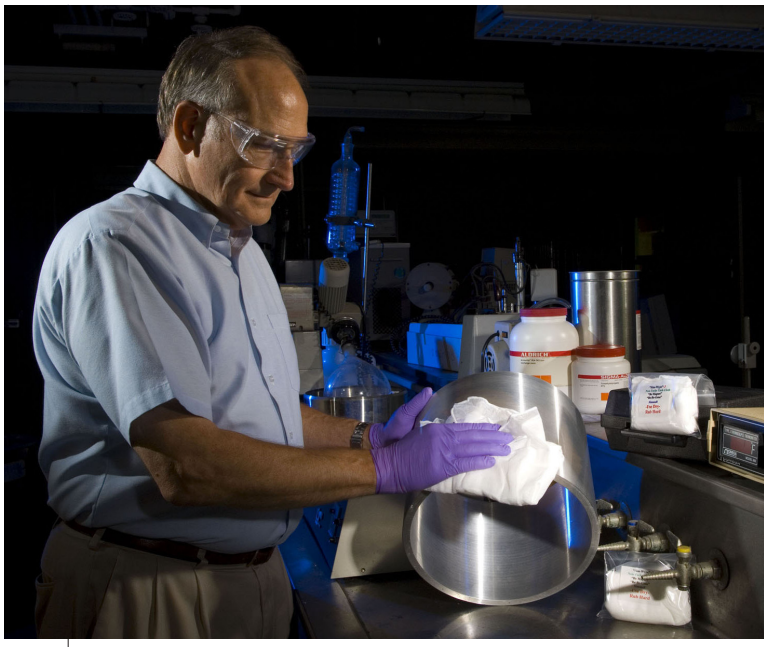
SIMWyPES® Cleaning Cloths

SIMWyPES cleaning cloths remove hazardous particulates from dry surfaces so well that the contaminants are undetectable.



Inventor Ron Simandl demonstrates the "use dry, rub hard" SIMWyPES cloth, which testing shows can retain four times the amount of standard dirt that untreated wipes retain.

The SIMWyPES cleaning cloth—a nontoxic, nonhazardous product perfect for government, industrial or home use—traps dry dust, dirt and other particles inside as it moves across a surface. Common tack cloths transfer a tacky residue to a surface being cleaned. However, SIMWyPES cleaning cloths employ a highly effective tackifier component that leaves no residue on the cleaned surface. The cloth can remove ultrafine particulate and other substances and could have wide applications in research settings and in the semiconductor, electronics and paint industries. At home SIMWyPES cloths can handle such routine chores as dusting furniture, cleaning counters and floors, shining shoes and buffing alloy wheels.

R&D Magazine recognized the SIMWyPES cleaning cloth as one of the most significant technological innovations of 2008, awarding it with a prestigious R&D 100 Award. The cloth was originally created at the Y-12 National Security Complex to remove residual amounts of acutely toxic beryllium oxide and beryllium particulate from solid surfaces *without leaving a residue*. The residue that common tack cloths leave behind often traps beryllium and anchors it to the surface. Thus, a presumably clean surface remains tainted with a contaminant that, if inhaled, can cause berylliosis and lung cancer.

BENEFITS

When the goal is to effectively remove submicron particles, SIMWyPES cleaning cloths are safe, convenient, and easy to use.

- ***Effective against environmental/occupational hazards:*** In tests using different formulations of the SIMWyPES cleaning cloth on stainless steel surfaces, in *all* cases, the level of residual beryllium, a contaminant linked with berylliosis and lung cancer, was reduced to below the detection limit of 0.01 μg/100 cm^2. No other method of cleaning achieved this *nanoscale* level. The cloths could also be valuable in removing other contaminants associated with particulate-induced diseases and ailments, including arsenic, asbestos (asbestosis, mesothelioma, cancer, diffuse pleural thickening), barium sulphate (baritosis), cadmium and lead.
- ***Economical:*** The cloth treatment can be applied to any commercially available clean room wiper, laboratory wiper, dust cloth, porous sponge, or filter media for as little as 3 to 5 cents per square foot. Even though microfiber cloths have enormous surface areas, the SIMWyPES cloth treatment can be added for as little as 17 cents per square foot.
- ***Residue-free:*** Unlike common tack cloths, SIMWyPES cloths leave no residue.

APPLICATIONS

The SIMWyPES treatment is effective for the following media and more:

- tack mats (a SIMWyPES mat is silent and nonsticky when walked upon);
- filter media (respirators, air cleaners);
- clean room swabs (wherever particle absorption and retention are critical);
- detector swabs (i.e., to assess, remotely or on location, lead contamination);
- mitten/glove wipers (to clean around shelving, piping and other lab structures);
- consumer specialty wipers; and
- dry mops.

The SIMWyPES cleaning cloth is ideal for such locations as the following:

- facilities for the Department of Energy and Department of Defense;
- nuclear power facilities;
- original equipment manufacturers (aerospace, automotive);
- maintenance, repair and operations (aerospace);
- manufacturing (microelectronics/beryllium, pharmaceuticals/dry powders);
- clean room cleanup; and
- surface preparation preceding paint application (furniture, nautical, and paint facilities).

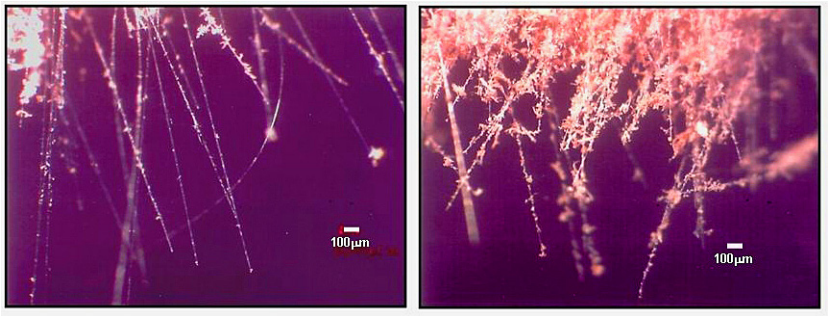
Removing road dirt and brake particulate from alloy wheels can be one tough cleaning job, compounded by the enlistment of a water pail, soap and scrub brush. Here is the result when a SIMWyPES cloth is used for the "dry" cleaning of a wheel.

The SIMWyPES cleaning technology is available for licensing.

For more information, contact:

Tammy Graham
grahamtb@y12.doe.gov
865-574-2214

Ron Simandl
simandlrf@y12.doe.gov
865-574-1729



Untreated **3% SIMWyPES treatment**

A respirator was fitted with an untreated cartridge and with a SIMWyPES-treated cartridge. The respirator was worn for one hour in a dusty woodshop environment. Note the dust-trapping ability of the treated cartridge.

Y-12 National Security Complex
P.O. Box 2009
Oak Ridge, TN 37831-8091

Visit us on the web at www.y12.doe.gov

SIMWyPES® is a registered trademark

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